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ABSTRACT

From February through March 1987, a questionnaire entitled "A Survey of Business and Industrial Personnel Educational Needs" was administered to factory workers. Data were collected from 475 blue-collar employees at four leading manufacturing plants in Bowling Green, Kentucky. Survey results indicated that nontraditional students may not be completely aware of the support services and basic procedures and requirements of most colleges and universities. Some students indicated that they would need some type of educational assistance in mathematics, English, writing, and reading. Findings were used as a tool in developing a proposed Industrial Education Degree Program that unites the technological demands of the labor force with the educational needs of blue-collar employees as nontraditional students. The model educational program is intended for use by industry and higher educational institutions as a guideline in revising the general education core of a four-year degree program. The proposed degree has three purposes: it could provide the opportunity for four-year institutions to join forces with business and industry to help combat educational deficiencies of employees in the current work force; it may provide a new pool of students for certain institutions in higher education; and it could meet the educational needs of blue-collar employees. (YLB)

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Educating the American Workforce

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Running Head: AMERICAN WORKFORCE

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Educating the American Workforce

ABSTRACT: This study was conducted to assess the educational needs of blue collar employees. The results of this investigation of 425 blue collar employees at four leading manufacturing plants in Bowling Green, Kentucky suggest the need to implement a special degree program for factory workers. The findings were used as a tool in developing a proposed Industrial Education Degree Program which unites the technological demands of the labor force with the educational needs of blue collar employees as nontraditional students. The revised general education courses could provide future opportunities for joint collaboration between industry and higher education.

RUNNING HEAD: American Workforce

INTRODUCTION

According to Kaplin (1986), industry anticipates an overall national shortage of qualified workers by the year 1990. This crisis is skilled manpower extends from the highly skilled technical computer, engineering, and basic research occupations to entry-level jobs of almost all kinds in the service as well as manufacturing sectors (Craig & Evers, 1981). Workers are increasingly competing with machines that can perform unskilled and specialized task more economically than people. This often results in "the displacement of certain workers and the elimination of certain jobs." According to a group of academic and corporate chief executives, in order for workers to compete in an automated workforce in the future, they will have to be literate, educated and creative in addition to being skilled (Labor Relations in Education, 1984). Today businesses not only need the latest technology, but they also need the best management system, the smartest, the most skilled and the most productive workers to survive in an increasingly competitive world (Duscha, 1984).

Rapid technological changes have created demands for massive and frequent retraining and perhaps even re-education of the nations labor force (Craig & Evers, 1981). A report form the Business-Higher Education Forum recommends that training programs in the future emphasize the kinds of jobs machines can't do, like communicating effectively, integrating information from a variety

of sources and managing nonroutine stituations intelligently (labor Relations in Education, 1984). According to Moser (1986), the philosophy of educational instruction should include a firm commitment to serving the business sector. Some of these factors include a college's willingness to:

1. Revise or update their curriculum.

2. Customize the institution to a company's specific needs. This may include conducting a needs assessment, in addition to developing new material which could be presented in a variety of formats, such as, short courses or workshops.

3. Flexibility in scheduling instruction and registration. Instruction could be offered any hour of the day. In addition, the beginning and ending dates of company courses should't necessarily have to coincide with the traditional college semester calendar. Registration could be conducted on site, by mail or phone.

4. Provide instruction on-site and provide training by using the company's equipment.

5. Whenever possible, college policies should allow provisions for awarding credit or certification for job training which may be applied toward a degree or certificate program.

6. Conduct ongoing evaluation of the program and instruction which is shared or jointly conducted by a company representative.

In the 1990's one of the major issues facing postsecondary educational institutions is their ability and willingness to provide continuing education and training for corporate America.

While some colleges and universities are committeed to such an effort, only one percent of the corporations are taking advantage of the opportunity (Moser, 1986). Moser (1986) stated that businesses are reluctant to take advantage of the opportunities offered by colleges and universities because educators have failed to fulfill their request for specialized training. Instead, they provide a standard version of content that's taught in the regular college curriculum. Furthermore, professional educators often lacked the flexibility of implementing updated content as well as state of the art knowledge required to establish credibility with a company.

A more positive view of the future of business-higher education collaborations would anticipate enormous opportunities for creative thinking and program development within a vital mix of democratic institutions. Scattered and sometimes visible higher education projects involving business and other community agencies have set valuable precedent - they show what could have been done (Craig & Evers, 1981). For instance, some colleges and universities have established models which demonstrate productive partnerships. These programs are not the stereotypical continuing education programs on hobbies or vocational courses (Schrier, 1981). Current continuing education activities include courses tailored to individual company locations (Craig & Evers, 1981). These activities are engaged in after full-time professional employment in a current specialty or develop

expertise in a new field.

A variety of university-industry linkage mechanisms have been initiated over the years. They have involved public and private institutions; different types of industries and several individual or combined sources of funds. There are approximately sixteen types of activities offered ranging from corporate-funded university research to consultations, and continuing education activity courses tailored to indidivual company locations (Craig & Evers, 1981). The mix of degree versus nondegree work varies. There are two primary motives for supporting or participating in continuing education: first, to improve the employee's current job performance; second, to prepare employees for their increased responsibilities (Brodsky, Kaufman & Tooker, 1979). For example, Sycrause University established an off-campus graduate program for IBM employees. In 1976, Rockwell International established a Ph.D. program in engineering at Howard University and North Carolina Argicultural and Technical State University. In 1945, Indiana University developed new degree programs in labor studies. The program incorporates a more flexible curricula, more convenient class times and locations. In 1973, Massachusetts Institute of Technology Processing Program established one of three centers for education and research under the National Science Foundation's University-Industry Cooperative Research Centers Experiment. This program has been the most successful in terms

of eliciting industry support, gaining acceptance by the university and producing tangible results. This new wave of adult education responds to the needs of workers, students who seek courses to help them advance on the job or in their labor organization as they further want often are long-delayed educational goals (Division of Labor Studies, 1987).

Business/higher education relationships have been built around teaching/learning, new ideas and products, flow of human resources, and strategy development. As education and employment institutions become major components of a life-long learning system, new strategies and mechanisms for communication are needed (Gold, 1981). Our age of credentalism recognizes the ever-rising level of education of the American workforce; the demands of increasing automation and specialization, and the training necessary for workers to keep their present jobs or to advance (Schrier, 1981). According to the plant manager at Colt Industries Operating Corporation-Holley Automotive, Douglas Innes (1987), no longer can employees perform a single rudimentary function. Traditional machinery is being replaced by new machinery. This requires that each employee fulfill multiple roles as operators, stokhandlers, and inspectors. An employee's position is becoming one in which he/she governs themselves (Innes, 1987; Cohn, Springen & Hutchinson, 1987).

Method

Data Collection Procedures

From February through March 1987, a seven page questionnaire entitled "A Survey of Business and Industrial Personnel Educational Needs: was administered to factory workers. Data were collected from employees in the following industries in Bowling Green, Kentucky: General Motors Corvette Corporation, Colt Industries. Operating Corporation-Holley Automative, Eaton Corporation-Industrial Control Division Cutler Hammer, and Lord Corporation of 3,963 salary and hourly workers, 475 (12%) participated in the survey. The survey was designed to assess the educational needs of factory workers. This information was used to support a proposal to establish a model program for revising the general education core an "Industrial Education Degree Program" for blue collar employees (Williams, 1987).

Results

The average age of the factory workers was 34; 76 percent were married; 68 percent were high school graduates; and 6 percent were currently pursuing college degrees (Williams, 1987).

Table 1

Responses of Blue Collar Employees to the Survey of Business and Industrial Personnel Educational Needs

(N=475)

Responses	Percent
Needed tutorial services	30%
Needed access to a computer	84%
Preferred classes at place of employment	65%
Preferred classes meet twice a week	84%
Preferred classes meet in the afternoon	84%
Needed educational assistance in Math	38%
Needed educational assistance in English	29%
Needed educational assistance in Writing	5%
Needed educational assistance in Reading	3%

The results of the survey indicated that nontraditional students may not be completely aware of the support services and basic procedures and requirements of most colleges and universities; 30 percent would require tutorial services; 84 percent indicated that they would need access to a computer (16 percent own personal computers). Sixty-five percent of the employees preferred that classes be held twice a week during the weekdays from 3:20 to 4:20 p.m. Prior to enrolling in college courses, some nontraditional students indicated that they would need some type of educational assistance in Math (38%), English (29%), Writing (5%), and Reading (3%) Williams, 1987).

Proposed Industrial Education Degree

The findings of the survey lend support for the need of educational institutions to revise the general education requirements of the four year degree program. The general education core of the baccalaureate degree program could be revised to meet the needs of both industry and higher education. A joint effort could be made by both sectors to determine the most effective ways of implementing the new curriculum. Changes in the general education requirements could entail eliminating, revising, and creating specific courses for blue collar workers. One example is to create new courses that would focus on topics that are relevant to communication among employees in the factory setting. Innes (1987) indicated that employees are incresingly required to communicate with each other through team meetings. A course in group communication could be substituted for another general education requirement. Therefore, group communication courses would be more reflective of the needs of the employees and industry.

The current changes in technology and the increase in automation has demanded that blue collar employees utilize technical writing skills (Innes, 1987). The results of the Business and Industrial Personnel Education Needs survey indicated that employees need to refine their basic English skills. One method of addressing the need for both technical

writing and English is to include both in a revised curriculum (Williams, 1987). It is suggested what essay and technical writing are coupled for two reasons: (1) the employees should have a strong English foundation to provide them with effective communication skills; and (2) the nature of the work in today's industries continuously requires employees to use technical writing. According to Innes (1987), reports have to be submitted that are technically oriented and include the use of charts, graphs, and statistics. Mathematics is also increasingly becoming a part of the requirements of the job. In many industries employees attend in-house sessions to upgrade their mathematical and statistical skills (Copeland et al., 1987). The results of the survey also showed that this group of employees needed to improve their math skills (Williams, 1987).

Suggested Curriculum

The average full-time blue collar employee works approximately 40 hours per week and has established duties and responsibilities both on and off the job. Therefore, it's unlikely that they would enroll for a full-semester of coursework (12 credit hours). Since most workers indicated that they would enroll for one or two classes during a semester, some courses could be taught on the bi-term, a student could earn a total of 12 credit hours in 16 weeks which would consist of one semester of coursework (Williams, 1987).

The results of the investigation show that employees would feel most comfortable in a class of approximately 20 people at their place of employment. Classes could be taught at the employee's work cite, a community facility or in the college or university setting. The scheduling of courses could range from multiple sessions in the summer to weekend classes or evening and day classes (Williams, 1987).

Implications

The proposed Industrial Education Degree has three purposes. First, it could provide the opportunity for four year institutions to join forces with business and industry to help combat educational deficiencies of employees in the current workforce. Second, it may provide a new pool of students for certain institutions in higher education. Third, it could meet the educational needs of blue collar employees.

Colleges and Universities

Small, private liberal arts colleges and mid-level private and public urban institutions may experience a decline in enrollment (Carnegie Council, 1980). As a result, these institutions may have to seek new populations of students, and the proposed Industrial Education Degree could serve as a means to attract nontraditional students. Colleges and universities located in heavily industrialized areas may also have an interest in the degree program in attracting new students.

business and industry; enhance the university's role with nontraditional students; add to existing programs for adult/continuing education and to gnerate sources of American information for curriculum development in undergraduate programs for nontraditional students.

Business, Industry and Employees

As a result of the collaboration between business and higher education, the direct benefit to business is more educated and skilled workforce. Blue collar employees who are provided with a sound education while employed probably adapt more readily to changes in the workplace. They would also have an educational background that would equip them with the skills they need if they are laid off temporarily or permanently.

Discussion

One of the major findings of the investigation indicated that the skill of the American workforce needs to be upgraded. In order to address this dilemma, business, industry and higher education should try to reach an agreement on the most effective method(s) of re-educating workers. The proposed Industrial Education Degree is a model educational program that industry and higher educational institutions could use as a guideline in revising the general education core of a four year degree program.

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